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ABSTRACT

This Training Program was developed to prepare approximately 50 individuals to serve as discussion leaders in future training programs dealing with the Principles and Standards of the Water Resources Council. The evaluation report is organized into three sections: (1) Context - emphasizing such information as program development, participant and staff characteristics, and setting; (2) Transactions - directed toward describing the procedures employed in the training program; and (3) Outcomes - focusing on information and attitudes toward the sessions and the program in general and on the acquisition of knowledge by the program participants. The general conclusion of the evaluation was that the training program was a well-planned, well-managed, successful venture that accomplished its established goals. (BT)

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EVALUATION REPORT
of the
Training Program
on
Transfer of Technology . . . Training of Government Personnel in the Application of the Principles, Standards, and Procedures for Planning of the Water Resources Council

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EVALUATION REPORT

of the

Training Program

on

Transfer of Technology---Training of Government Personnel
in the Application of the Principles, Standards and
Procedures for Planning of the Water Resources Council

by

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and
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Environmental Resources Center
Colorado State University
Fort Collins, Colorado
December, 1974

FOREWORD

This report is an evaluation study of a Training Program entitled, "Transfer of Technology--Training of Government Personnel in the Application of the Principles, Standards and Procedures of the Water Resources Council for Planning Water and Related Land Resources, Phase II". It was conducted by Dr. Douglas Sjogren, Director of the Human Factors Research Laboratory, Colorado State University, and his Graduate Research Assistant, Robert D. Wittman.

The Training Program is a cooperative program between Colorado State University, the Water Resources Council and the Office of Water Resources and Technology (OWRT), Department of the Interior. It was funded under Grant No. 14-31-0001-4260, Project X-143 by OWRT.

Among other items, the Grant called for the following services and products to be produced:

1. Training 30 to 50 trainees
2. Training Program Manual
3. Evaluation Report on Training Program
4. Audio/Visual Video Tapes

This evaluation report should be helpful to others who contemplate similar training programs, suggesting to them ideas that proved useful in this case as well as some pitfalls that should be avoided.

Henry P. Caulfield, Jr.
Program Director

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INTRODUCTION

This evaluation report is submitted in accordance with the "Evaluation Plan" (Appendix 1) which outlines the objectives, procedures, timetable and format of the evaluation activities. It was organized under the three bodies of information on which the evaluation concentrated; Context, Transactions and Outcomes. Under the general rubric of Context, the concentration was on information such as the program development, participant and staff characteristics, and the context of setting in which the project was implemented at CSU. The next section, Transactions or process information, was directed toward describing the procedures used in the training program. Outcomes, the last section, has focused on information and attitudes toward the sessions and the program in general and on the acquisition of knowledge by the program participants.

A variety of means were used to gather information about the context, transactions, and outcomes of the project. The evaluators were allowed and indeed encouraged to observe staff meetings preparatory to the training program as well as the training program itself. In addition to these observations, questionnaires (Appendix 2) were given to the participants throughout the duration of the project in an attempt to systematize their reactions, judgments, and observations. The questionnaires are discussed in greater detail in the other sections of the report.

SUMMARY

The evaluation of the two week training program in the application of the Principles and Standards for Planning of the Water Resources Council was conducted by the Human Factors Research Laboratory at Colorado State University. The training program was broken down into two parts. The first five days of the program dealt with the conceptual issues of the Principles and Standards and the setting up of measurements. The last five days of the program were designed as a practical simulation exercise in a Level B and C study in which the participants could actually engage in thinking through a planning program. There were a total of seventy-six official participants taking part in the program of which forty-seven were registered as trainees and thirty-three as observers. The data used in this evaluation were gathered through the use of a series of questionnaires given to the participants of the program and the recorded observations of evaluators.

The general conclusion of this evaluation was that the training program was a most successful venture. The program was well-planned, well-managed and appeared to successfully accomplish those goals which had been established. The following statements briefly summarize the findings of this evaluation and provide the basis for the overall conclusion.

1. The participants in the program represented a diverse population within the planning field. Generally, they were well-educated, represented a variety of agencies and seemed to have sound needs for attendance in training program. One of the most striking findings was the large variation exhibited among the participants in their experience in water resources planning and with the Principles

and Standards. There seemed to be almost a bimodal distribution with some participants having considerable experience in both areas and others having very little.

2. In the opinion of the evaluation team, the noon feedback sessions were moderately successful. These feedback sessions were designed as a method to get immediate input from the program participants on various aspects of the program. Each noon, six different trainees were invited to lunch with selected members of the program staff. Several issues, mostly dealing with the facilities, were brought to the attention of the staff and quickly remedied. The sessions allowed the participants the opportunity to interact with the staff on a more individualized basis. In addition, when the discussion centered around areas of the program which were impossible to change, the feedback session provided a medium through which some understanding and catharsis with regard to that issue could be achieved by the trainee.

3. Almost without exception, the meeting facilities and general accommodations at Colorado State University were viewed as being exceptional. Many of the participants remarked on the excellent facilities available at that campus for conducting programs of this type. Based on the average response of the trainees to rating scales in these areas, the housing facilities were viewed as being good and the meeting facilities were seen as being excellent.

4. The primary expectancy of the majority of the participants in the training program was to gain some practical information and understanding on the implementation and application of the Principles and Standards that would be of use in their planning duties. The

majority of the trainees who provided input into the evaluation felt that the program had lived up to their expectations for it. These trainees seemed to expect a clear, thorough exposition of the Principles and Standards and were not expecting any "cookbook" solutions. That is apparently what they perceived they got. For those trainees who did not feel that the program has lived up to their expectancies, the feeling seemed to be that the course was too theoretical, conceptual and abstract. The practical issues were not felt to have been addressed as adequately as had been expected.

5. From the perceptions of the participants, the most positive aspects of the program were seen as the opportunity for the interaction with a broad representation of other professionals in the area and the opportunity to actually apply the Principles and Standards during the second week. In addition several participants felt that the presentation of the concepts, background and evolution of the Principles and Standards by knowledgeable and qualified personnel was a very positive aspect of the program. The negative aspects or weaknesses of the program were generally perceived as being some aspect of the planning exercise; such as its complexity, lack of coordination with the rest of the program, its contrived nature, and its involvedness and lack of time. Also noted was the theoretical emphasis and the failure to present new information during the first week of the program. The evaluators felt that the overlapping nature of some of the responses about the strengths and weaknesses of the program was a reflection of the wide variation in the planning background and experience of the participants with the Principles and Standards.

6. In general, the participants were satisfied with the lecturers and their lectures. They felt that the program organization was

good and were satisfied with both the quantity of material presented and the content level of this material. On the other hand, there was a general feeling that the more formal sessions of the first week were too long; that for many, much of the material presented was familiar and that more information dealing with application and implementation would have been desirable.

7. An examination of the attitudes of the trainees toward various aspects of the program and the Principles and Standards both before and after attending the training program revealed several attitudinal shifts. Based on mean responses, the following conclusions were drawn:

a. The trainees believed that they could do a more competent job of applying the Principles and Standards at the end of the program.

b. The trainees felt that they could do a better job of teaching others how to interpret and apply the Principles and Standards at the end of the program.

c. The trainees were more strongly convinced that they had reason to use the Principles and Standards in their job at the end of the program.

d. There was an increase in the belief that the Principles and Standards contained a good deal of ambiguity.

e. The program did not quite live up to the trainees expectations in the areas of gaining much useful information and making their jobs easier. However, they were still satisfied in both areas at the end of the program.

8. Additional support was given to several of the above attitudinal shifts by the mean responses of the trainees to an

instrument which attempted to assess both the degree of understanding and application of several specific areas in the Principles and Standards. This instrument was given to the trainees both at the beginning and the end of the training program. In all of the areas assessed there was an increase in both the degree of understanding and the degree to which the trainees felt they should make application of these areas.

9. A clear majority of the participants indicated that they would recommend this course to their colleagues. The mean response of the participants to a rating scale of the overall program quality was better than average.

10. On many evaluations there appears to be a tendency for the participants to emphasize the negative aspects of the program. The reasons for this tendency is discussed in the following introductory section of the report. However, it speaks well for the program that despite this propensity, the positive comments more than outweigh the negative ones.

11. Finally, from the perspective of the evaluators, the conscientious efforts of the staff preparing for this program were far superior to those of a number of projects with which they have been associated. This effort was duly noted by the participants as indicated by the numerous compliments made to the staff regarding their concern for the needs of the participants.

Before proceding to a discussion of our findings, a brief statement of our conclusions and some methodological considerations will be presented. The primary reason for doing this is that often times because of the necessarily restrictive format in which the data

in an evaluation are gathered, a certain emphasis is introduced into that evaluation. It is these evaluators' experience that this emphasis is frequently in the negative direction. There may be several reasons for this. Many people only consider evaluation in the negative sense. There is a tendency for participants in a program to be more verbose when pointing out program weaknesses or areas that could be improved than when discussing program strengths. Positive comments tend to be more succinct or frequently lacking even though the program contained many positive aspects about which comments could have been made. Perhaps because of this, there also appears to be a tendency for questions in evaluations to focus on what is wrong about a program as opposed to what is right. While we have attempted to overcome these inclinations in the present evaluation, we feel we have achieved only moderate success. Although many positive aspects of the program are discussed, these appear to be somewhat overshadowed by the emphasis on the identification of problems and issues. This might cause the reader to reach a conclusion which is unjustified by our conclusions. Our general conclusion was that this program was a very successful one. From our initial involvement in the planning activities until the termination of the program, we have been impressed with both the quality of the training program and the conscientiousness and thoroughness with which the staff approached the task. Numerous consultations were held with people experienced in planning programs and no detail seemed too small about which to be unconcerned. This attention to detail was very much in evidence throughout the course of the program. Again, our own conclusions after an examination of the data gathered and our own observations was that the program was

well-managed and successful. The reader would do well to begin his examination of these same data with this conclusion in mind

CONTEXT

The two week training program with which this evaluation is primarily concerned was conducted on the Colorado State University campus in Fort Collins, Colorado during the period of August 11 to Autust 23, 1974. The events and circumstances leading up to the training program have been documented in other sources, such as the preliminary training manual and the initial research proposals, and therefore, no lengthy repetition of the same will be undertaken. Briefly, it appears that there were two primary justifications for designing a training program for the new Principles and Standards (P & S). First, the new P & S made substantial policy and technical changes from the then extant guidelines and it was felt that training for planning personnel in Federal, Federal-State, State and local governments was needed. Second, the awareness of the disparities between planning policy expectations and final planning product provided additional justification for a training program.

The two week training program with which this evaluation deals was seen as a test of the training program which had been designed in the earlier phases of the project. From this training program, it was expected that besides a test of the effectiveness of the various components of the program, several additional benefits would result. First, a group of approximately fifty trainees would emerge, many of whom might serve as discussion leaders in training programs using these same materials in their own agencies. Second, additional material would be developed during this first two-week program which could be used more widely by government agencies and other training activities. Finally, it was expected that through the interaction of

the "Washington" and university types with the actual "firing line" planners, areas in the P & S where inconsistencies and/or omissions might exist would be illuminated. An agenda of these items was to be prepared for the attention of the Water Resource Council (WRC) staff as a result of the two-way interaction during this program.

Prior to the beginning of the training exercise an Advisory Committee "...composed of leading experts in universities, government or elsewhere on matters pertinent to training programs...(was)... assembled for two days of presentation, critical review, and recommendations for improvements of the tentative training program (Title II Proposal, 1974, p. 7)." On June 27, 1974 eleven of these experts met at CSU and were given the task of 1) improving the training program within the limits of the present structure and, 2) highlighting what problems and points should be brought out during the various individual sessions of the program. As this represented an initial evaluation of the program the present evaluators were allowed to attend these meetings as "participant-observers." In addition, the evaluators prepared a questionnaire for the participants at the review session in order to gain some systematic feedback from them.

From the observations of the evaluators and the responses of the six committee members who returned questionnaires, the meetings were seen as being very profitable. Numerous concerns and suggestions for improvement of the training program were discussed and many were later incorporated into the revised training program. Some of the areas discussed during the review session were as follows:

a) initial orientation of participants.

b) length of individual sessions and allocation of time to various sessions.

c) length of training program.

d) method of feedback for participants.

e) importance of various content areas for inclusion or exclusion.

f) relationship of lectures and individual sessions to each other and to planning process.

g) function and importance of moderation.

h) order of specific area and content presentation.

i) specific content of individual sessions.

j) size of groups for second week of training program.

k) output and evaluation of groups during second week of training program.

l) observers function.

m) diverse attitudes, backgrounds, positions and experiences of trainees.

n) follow--on training procedures.

As previously indicated, all of these areas seem to have been considered in the revisions of the training program and many of the suggestions were incorporated into the revision. It is of great credit to the planners of this project that they were so diligent in seeking suggestions for improvements and so receptive when they were given.

The final format of the training program was designed to accommodate fifty trainees and twenty-five observers. A list of the names and organizational affiliation of the trainees and observers is available in Appendix 3. Biographical data on the trainees who returned questionnaires are presented in the following table.

Forty-seven trainees registered, however biographical data were available for only forty-three of them as four trainees failed to

TRAINEE BIOGRAPHICAL DATA

Age	N
25-29	5
30-34	8
35-39	12
40-44	7
45-49	4
50-54	4
55-59	2
60-64	1
$\bar{X}$ =	40

Sex	N
Male	43
Female	0

Education	N
Assoc. Degree	1
Undergraduate	8
Some Grad.	10
Masters	19
Ph.D.	5

Yrs involved in Water Resources Planning	N
0-4	9
5-9	13
10-14	7
15-19	6
20-24	3
25-29	5
$\bar{X}$	11.37

Last Major Ed. Experience	N
0-4	24
5-9	11
10-14	3
15-19	1
20-24	2
25+	1
$\bar{X}$	5.71

return our initial questionnaire. Several points can be inferred from the table which may have implications toward the trainees reactions to the training program. First, with the exception of sex of the trainees, there is a considerable amount of diversity within the trainees in all the assessed categories. Because of this, one might expect a similar degree of diversity of reactions to the program by the trainees. An examination of the distribution of the number of years the trainees have been involved in water resource planning indicates that there is a wide range of experience in this field among the trainees. Thus, it would appear that any approach a lecturer is likely to make with regard to content level will be viewed by some as being inadequate. Second, the trainees are most likely knowledgeable, opinionated critics of educational programs. The majority of the trainees are very well educated having at least had some graduate work and have thus had a good deal of experience with educational programs. Ample opportunities have been afforded with which to develop criteria against which to judge educational programs. The distribution of the trainees with regard to the approximate period of time since their last major participation in a formal educational experience would also seem to support the above inferences. The memory of long hours of lecture and the classroom are much more recent for some than for others.

In an attempt to relate the background of trainees more specifically to the P & S, the initial questionnaire contained an item which asked about the amount of experience with the P & S and an item which dealt with the levels of planning (i.e., Level A, B, or C) with which they were typically involved. The following table summarizes these responses.

EXPERIENCE AND INVOLVEMENT

Experience with P & S	N	% of Involvement	Level A N	Level B N	Level C N
None	2	0-9	19	7	17
Very little	10	10-19	9	5	1
Average	16	20-29	5	5	4
More than Average	9	30-39	1	6	5
Great Deal	6	40-49	0	1	0
		50-59	4	7	1
		60-69	1	0	2
		70-79	0	1	4
		80-89	0	2	4
		90-100	0	5	4

Again the diversity among trainees is noted. The wide range of experience of the trainees with the P & S supports the assumption that with regard to content level and emphasis, it would be difficult to provide a program to meet the demands of such a diverse group of participants. The decision of the staff to include both B and C level studies in the training program seems particularly justified based on the trainees' own assessment of their involvement in the various levels of studies.

Biographical data were also gathered on the observers who attended the training program. These data are summarized for those returning questionnaires in the following table. Thirty-three observers registered for the training program, however, only twenty-one returned the questionnaires from which the data was tabulated. The observers' responses indicated the same pattern of diversity as did the trainees.

OBSERVERS' BIOGRAPHICAL DATA

Age	N
25-29	1
30-34	1
35-39	3
40-44	3
45-49	5
50-54	5
55-59	2
60-64	1
$\bar{X}$	46.38

Sex	N
Male	21
Female	0*

Education	N
Assoc. Degree	0
Undergraduate	3
Some Grad.	6
Masters'	9
Ph.D.	3

Yrs involved in Water Resources Planning	N
0-4	3
5-9	3
10-14	3
15-19	2
20-24	6
25-29	1
30-34	1
35-39	1
$\bar{X}$	16.57

Last Major Ed. Experience	N
0-4	13
5-9	4
10-14	2
15-19	1
20-24	0
$\bar{X}$	3.35

*There was one female observer participating in program, however, her questionnaire was not received by the evaluators.

There were some differences, however. On the average, the observers were older than the trainees; had been involved in water resource planning for a longer period of time and had been involved in a major educational experience more recently than the trainees.

The observers were also asked questions which attempted to relate their backgrounds more specifically to the P & S. Their responses to these questions are summarized in the following table.

EXPERIENCE AND INVOLVEMENT

Experience with P & S	N	% of Involvement	Level A N	Level B N	Level C N
None	2	0-9	7	4	3
Very little	4	10-19	4	1	1
Average	6	20-29	0	4	1
More than Average	8	30-39	0	1	2
Great Deal	3	40-49	1	0	0
		50-59	1	1	2
		60-69	0	0	1
		70-79	0	1	1
		80-89	0	0	0
		90-100	0	1	2

The pattern of these responses is very similar to that of the trainees. Again, there is wide variation in the amount of experience the observers have had with the P & S. However, the observers are generally involved with planning of levels B and C studies. Three of the observers, however, indicated that they were not typically involved in planning duties.

With minor exceptions, there was little distinction between the observers and the trainees on the variables assessed in this evaluation. It is interesting to note that there was also little distinction between the observers and the trainees in the manner in which they were integrated into the training program. From the comments of the project staff prior to the implementation of the training program, the evaluators had expected a more marked distinction between the functions of the two in the program. Our expectations were that the observers would be in attendance at the training program for only a few days to possibly one week. They were also not expected to be active participants in the training activities. This distinction did not materialize. One suspects this was due to several factors among which were the informal atmosphere in which the program was conducted, the similar backgrounds of the two groups and the initial reassessment of the staff with regard to the role of observers. Many of the observers registered at the beginning of the program, were active participants and stayed for the two week duration of the course.

Additional insight into the characteristics of the observers and trainees were provided by their responses to a question dealing with their reasons for attending the training program. The trainees were asked why they felt they were selected for this training program. The majority of the responses focused on four areas. Seventeen of the trainees indicated that their positions or job responsibilities were the prime factor in being selected for or participating in the program. Eight of the trainees were more specific indicating that their present involvement in a water planning project was the reason for their attendance. Five of the trainees responded that they would in some

way be involved with the application and implementation of the P & S within their respective agencies. The other responses were scattered over a wide range of areas. Two of the respondents indicated they would be involved in some type of training program on the P & S. Two trainees indicated some past involvement in the P & S as reason for their participation. Two trainees mentioned a general interest in the area of water planning. Two respondents said that they wanted to gain more understanding of the P & S. Finally, one trainee said he was selected as a representative of the states, another was attending for career development and three participants left this question unanswered.

The observers were also asked why they were attending the training program. Their answers were in many cases more precisely formulated than the trainees and in many cases more precisely formulated than the trainees and in many cases multiple responses were given. For the latter reason it was difficult to give an exact tabulation of their responses. A summary of most of the areas mentioned, however, follows:

a) general assessment of the training program.

b) to gain some insight into the various interpretations of the P & S.

c) involved with the application and implementation of the P & S within their agencies.

d) involved with P & S training within their agencies.

e) some relation to their job or position responsibilities.

f) to become better informed on the P & S.

g) to become more familiar with the problems of the field planner in the implementation of the P & S.

In summary, it would appear that the participants in the training program represented a diverse population within the planning field. This fact might lead one to predict that the program would not satisfy all of the varied expectations represented within this group. A number of commonalities were also present in the group, however. The participants were all well educated and seemed to have reasonably sound needs for attendance in this training program. One would expect that these participants would form a critical group which was well-suited for the initial implementation and evaluation of a water resource training program on the P & S.

TRANSACTIONS

This section will be directed toward describing the procedures used in the training program. We will attempt to provide the reader with a brief overview of our and the trainees' perceptions of what transactions took place during the course of the two-week training program.

An outline of the course structure is provided in Appendix 4. The program was designed to cover forty sessions over a two-week period. The content concentration in the program went from the "general to the specific" with the program being broken down into two parts. The first five days of the program covering twenty sessions dealt with the conceptual issues of the P & S and the setting up of measurements. After a two day break, which was set aside for relaxation, general study and recreation, the participants returned to finish the last part of the program which also covered approximately twenty sessions. As it turned out two of the last week's sessions were integrated into other sessions in order to finish the program a half day earlier than scheduled. This enabled the participants to make more convenient transportation arrangements. The last part of the program was designed as a practical simulation exercise in a level B and level C study to engage the participants in actually thinking through a planning program integrating the knowledge gained from the first week of the program and previous experience. The simulation exercise for this program was designed around the Bear River Basin study. This study was modified in order to include illustrative material on a broad range of problems and possible conclusions. The information was presented to the participants via several exercise booklets and lectures.

The presentation format of each day of the first week of the program was basically the same. The program started at 8:30 in the morning with a one hour lecture presentation over a topic area in the P & S with a thirty minute discussion period following. After a thirty minute coffee break this process was repeated. Following a one and one-half hour lunch break, the afternoon sessions were conducted in a manner similar to those of the morning with the sessions ending at five o'clock.

The second week of the training program followed a very similar format. There were five lectures structured around the concept of the six steps in the plan formulation process. Following each lecture and a brief discussion period, the trainees were grouped into teams which were to apply the previously discussed step to the simulation exercise. The teams met for ninety minutes and then the groups of trainees reconvened to discuss the outcomes of the step applied. This discussion took the form of one team from the Level B study and one team from the Level C study presenting their data to the group. After each presentation, a preselected group of observers provided feedback by role-playing various individuals from interest groups likely to be concerned with a water resource planning project, e.g. taxpayer, conservation group member, Chamber of Commerce member, etc. After this, discussion would follow and then the next step in the plan formulation process would be presented.

In addition to the daily meetings, there were two dinners and two night sessions held during the two week period. The two night sessions were used as a forum for people of common concerns and interests to come together in informal discussion. At each session, several small

groups were held, led by some of the participants with an interest and/or experience in the area being discussed. Attendance was not mandatory at these sessions and in fact, only a small percentage of the participants participated in the second night session's activities.

Two consistent features of the program were the presence of a moderator and the noon feedback. The moderator function was performed by Professor Caulfield. The moderator's role was to provide some brief summary of each session's content, to provide some continuity between sessions, to assist in relating the presentations to the Principles and Standards and to act as a facilitator and arbitrator of discussion. It appeared that Professor Caulfied exercised constraint in carrying out this role and minimized any heavy-handed structuring or domination of discussion.

The noon feedback session was designed as a method for the trainees to provide immediate feedback and input to the program staff and their perceptions of the program and concerns with any aspect of the program or facilities. Each noon, six different trainees were asked to have lunch at a table with the program staff, a member of the evaluation team, the lecturers for that day and any other dignitaries present. During lunch, the trainees were asked to comment on their feelings about any aspect of the program. It was felt that this session would allow the trainees to assume a more important role in the program structure and to identify more closely with the program. In addition, it allowed the staff the opportunity to correct any serious deficiencies that were noted and another avenue to maintain some awareness of the mood of the trainees. In the opinion of the evaluation team, the noon feedback sessions were moderately successful. Several issues dealing

with the facilities were brought up which were immediately dealt with by the staff. It also allowed each of the trainees the opportunity to interact with the staff on a more individualized basis. Some trainees also provided feedback on the areas of the program which were impossible to change at that point in the program. However, it did allow for some discussion of the issue with the staff and therefore, possibly some understanding and catharsis with regard to that issue by the trainee. Many of the discussions at the noon feedback session, however, centered around conceptual and philosophical issues in the area of the Principles and Standards or water resource planning. These discussions may have been of some value, but were not expressly the intent or purpose of the feedback sessions.

In addition to providing feedback at the noon luncheon, each day the six trainees selected were asked to fill out a questionnaire which was used by the evaluators to obtain more systematic feedback from the trainees on the daily progress of the program. A daily summary of this information is given below. The reader should be sensitive to the methodological limitations of this summary. Because the daily sample was small and, in some cases not all individuals returned the questionnaire, it would be unwise to generalize the daily feedback information to the entire group. However, as most all of the trainees did participate in one of daily feedback samples, the patterns of responses across the two week period may be quite meaningful.

Day 1

At the noon session, several points were raised by the participants. Specific points were as follows:

a. One trainee asked if the tangential conversations in the audience could be reduced. It was often difficult to hear the lecturer or discussion because of this conversation.

b. Many found it difficult to see the material projected via overheads.

c. One trainee felt that the instructors and observers were monopolizing the discussions. He requested that the trainees be allowed the opportunity to direct the initial questioning.

d. There was a request to separate the smokers and the non-smokers.

e. It was asked if only one question from each participant be allowed during the discussion.

f. One trainee suggested that written questions be submitted for the panel discussion.

g. A suggestion was made that the speakers identify themselves when asking questions.

The staff responded immediately to the problems discussed at the feedback session by making the appropriate suggestions to the trainees at the start of the afternoon sessions. In addition, attention was directed toward improving the ventilation system in the meeting room as many participants had voiced complaints about the stale air.

Five of the trainees returned the daily evaluation form. On this form they were asked to rate several areas of that day's activities. The trainees rated the discussions on the dimensions of quality and quantity on five-point scales. On the dimension of quantity, a response of "too much" was scored as 1, "about right" as 3 and "too little" discussion as 5 with a score of "2" being given to a response in the

position between "too much" and "about right" and a score of "4" for a response between "about right" and "too little." On the dimension of quality, a response of "very productive" was scored with a "1" and a response of "very unproductive" was scored with a "5." The response between these two endpoints was given a "2," "3" or "4" score as applicable. The mean response on "quantity" of dicussion was 3.5 and 2.6 on quality of discussion. This would indicate that the five trainees felt there tended to be a little too much discussion and that, in general, the discussion tended to be somewhat unproductive.

The trainees were also asked to indicate their rating of that day's sessions and to give an overall rating of the training program up to that day. Again, a five-point rating scale was used with a response of "excellent" receiving a score of 1, "good" received a score of 2, "average" was scored as 3, a "poor" response received a 4 and a "very poor" response was scored as a 5. The average rating for Day One's sessions was 2.4 and for the training program up to that point 2.2. This would indicate that the five respondents has generally favorable reactions toward the program.

The questionnaire also contained two open-ended items; one dealing with general reactions to the structure of the training program and the other with reactions to the structure of the training program and the other with reactions to the meeting and housing facilities and general accommodation. One trainee felt that Sessions 2 and 3 were not very meaningful and questioned the need for a second week in the program. Two trainees expressed a desire for future lectures dealing with practical problems of the field planner. All the respondents were pleased with the facilities and general accommodations. The only

exception to this was concern about the lack of air conditioning in the meeting room.

An additional comment was made by a trainee who commended the planning and arrangements that had gone into the program. This supportive statement had also been voiced at lunch and was concurred with by the other trainees present.

Day 2

There were no substantial issues raised during the noon feedback sessions. The discussion centered around a continuation of the morning sessions. There were a few minor problems mentioned. Some trainees were concerned about the logic of the order of the speakers. A comment was made about the sessions being too long and expressing the desire for optional evening sessions. One trainee also suggested that more use be made of the speaker. He noted that many of the questions during the discussion period were tangential to the topic area. Another trainee was concerned because the discussion did not center around application. The evaluators noted that the meeting facility environment was much improved.

Five of the six trainees given the daily evaluation form returned them. The average rating for the quantity of discussion was a 3.00, indicating that the trainees felt the amount of discussion was "about right." This group evidently felt the discussion was more productive than the first day's discussion as the average rating was 2.5 on the quality of discussion rating scale. This improvement in the discussion periods coincides with the impression of the evaluators. From our observations, it appeared that there was more interest evidenced by the participants in the discussion sessions.

The average rating of the Day 2 Sessions was 2.4 and the average overall rating of the program to that point was 2.6. Both these ratings indicate that the trainees felt that the program was somewhat better than average. It might be noted that several of the comments made in reference to the ratings inferred that these trainees preferred the lectures and discussion that centered around concrete, practical, application areas as opposed to the conceptual, abstract issues.

There were several interesting responses to the open-ended questions. Two of the trainees indicated that the structure of the program appeared very logical. There was a general concensus, however, that the day's activities could be shortened. Another area of general agreement was that evening sessions were not desired. The one trainee in this group who had rated the program the lowest made several suggestions on how to improve it. He suggested that an entire topic area be addressed at one time. For example, all the issues relating to EQ could have been addressed together. In addition, he suggested that "the program should include panel type discussions of problems and experiences intermingled with the lectures." All of the remarks made with reference to the facilities and general accommodations were complimentary and positive. Many of these trainees commented on the excellent campus facilities.

Day 3

At the noon feedback session, the evaluators formed the impression that a phenomena we call "conference depression" had begun to be manifested among the trainees. People were questioning what they were getting out of the program. The major complaint was that the information was not practical. They talked of wanting more specific measurement

techniques. There was also some dissatisfaction with what they felt was a tendency to keep going over the Principles and Standards. There were several suggestions made. One was concerned with the make-up of the teams next week. The suggestion was essentially that the teams have broad representation and the case study be truly Level B. Another suggestion was that the videotapes being made be made available for viewing. Both these suggestions were implemented by the staff.

Again, five trainees returned the evaluation forms. The average ratings on the discussion indicated that the opinion was there was somewhat too much discussion (2.5) but that the discussion was generally productive (2.25). The average ratings of that day's sessions and the overall program to that point were 2.33 and 2.75 respectively. These ratings are somewhat misleading as two of the five trainees failed to respond to these questions. The comments of the trainees are more illuminating.

There were several themes supported by the majority of comments made to the open-ended questions. Again, the trainees voiced the opinion that the sessions were too long. There was also concern about the repetition of material and the failure to devote more time to the application of P & S. In a private conversation, one of the trainees commented that the presentations so far had dealt with issues already familiar to everyone. He felt that the trainees were all familiar with the Principles and Standards, but what was needed was how to apply them. Three of the comments from the day's respondents seemed to support these feelings. One of the respondents felt this was due to the wide range of skill and experiences of the trainees. He suggested that the participants should have been screened and a condensed version

of the course be given to the more experienced trainees so that more time could be devoted to application. The only other comment made by the trainees was that there was some lack of continuity between the presentations of the speakers.

Again, all respondents were extremely complimentary about the facilities at CSU.

Day 4

There were a variety of concerns expressed during the luncheon session; none of which were too significant. One participant expressed the desire to have the content of the lecture presentations available beforehand. Another trainee was concerned about the application of the P & S to the States and was assured this would be covered. The idea of a break on the next Wednesday was brought up but quickly dismissed by the staff. Several trainees were concerned with the amount of reading of the Principles and Standards by the lecturers which was being done. They indicated that they already knew much of the material being read or could just as easily read the P & S themselves. There was also some dissatisfaction expressed with the lecturers who read their presentations. Again, someone mentioned that it was difficult to hear the questions that were asked during the discussion periods (Professor Caulfield periodically tried to remedy this by asking the members of the audience to speak up when asking questions and by asking the speaker to repeat the questions before attempting to answer it). Finally, several trainees complimented the program and the efforts of the staff which provided some perspective to the above remarks.

Only four of the six trainees given forms returned them. The average ratings of the discussions indicated that there was just about

the right amount of discussion (3.25) and that this discussion was seen as being productive (2.33). The four trainees rated this day's activities as about average (2.75) and the overall program as a little below average (3.25).

Several of the comments made were repetitions of the luncheon comments. These comments concerned the reading of the papers by the lecturers and the apucity of content dealing with actual application. In addition, the familiar comment for shorter sessions was made. One trainee's remarks seem worthy of quoting, "At this point I feel that the success of the venture will be dependent upon how much I put into the case studies and how effective Caulfield is."

Positive remarks were made about the facilities and general accommodations.

Day 5

The only substantive comments made during the luncheon period were that the trainees were pleased that the content was becoming more practical. This observation was directed toward the Thursday sessions and the sessions they had heard today.

The discussions were given average ratings with regard to amount (3.00) and productivity (2.75). The average rating for today's sessions was the highest yet received (1.66) supporting the comments made during the luncheon meeting. The average overall rating of the program after five days was above average (2.5).

Several of the comments about the trainees general reactions to the structure of the program to date, speak best as actually written by them: "There was too much overview and theory in the first two days. Other than that, the topics seem to follow in the proper order. . . .

seemed like the theory needed to be tempered with problems encountered in attempted application."

"Until yesterday afternoon, the information presented in the lectures was too related to fundamentals and methodologies for my interest. I need more information on implementation of procedures. . . Perhaps more information on the nature of the instruction and the level (background) of persons selected for the course should have been provided to the States and Agencies so that a more homogenious group could have attended. A good bit of background type presentations could have been avoided for those attendees who were already acquainted with the subjects discussed thru Thursday noon, and the Modeling discussions today. The session of Thursday afternoon was the most informative of the week for my use in implementing the P & S. The Preliminary Manual put together for the course is excellent."

Comments relating to the facilities were again positive.

Day 6

This was the first day of the simulated planning exercise and the comments at the noon feedback session reflected this. The trainees indicated that there were not enough copies of the material available for all the groups. In addition, there were two groups in each room making the noise level inordinately high (The staff remedied this immediately). After lunch, one of the evaluators held a private conversation with one of the trainees who was quite critical of the length of the training program. He would have preferred a one week exercise. He also expressed some apprehension about the usefulness of the manual and videotapes for use in his agency training.

Only four evaluation forms were returned. The average ratings were quite good. The discussions were viewed as being quite productive (2.00) and "about right" in amount (3.00). The average score on the rating of today's sessions was 2.25 and for the overall training program was also 2.25. Both, then, were given a good rating. These ratings could be a reflection of several things; the weekend activities and break, the changes in the program activities, more emphasis on implementation or the personalities of these particular respondents.

There was only one comment about the sessions being too long. One trainee responded that he was quite pleased with the length of the sessions. Most of the responses to the open-ended questions were very positive toward the program indicating that the trainees had benefited from the program.

As usual, the remarks about the facilities and accommodations were positive.

Day 7

The discussion at the noon feedback session centered around the structure of the planning exercise. Many of the trainees present felt that the exercise could have been simplified. They expressed a desire for the rules or procedures to be laid out. They wanted to know more precisely what important data they should concentrate on. Another concern was that everyone should be going in the same direction. This did not appear to be the situation as perceived by this trainee. One revealing remark was made by a trainee. He indicated that he was very confused in his meeting and that finally, after much struggle, came to a realization of what a point in the Standards actually meant. He also commented that the exercise really made them use and deal with the

Standards. If others were having this same type of experience, it would seem that the exercise was really accomplishing something.

Five trainees returned the daily evaluation questionnaires. Two of the trainees' responses to the open-ended questions provide some insight into the difficulties a program like this has in satisfying all of the participants.

Trainee One:

"Getting most from this portion of the seminar. Rating increasing toward end (Made in reference to overall rating of the program). Too unstructured at beginning and until Tuesday of the 2nd week."

Trainee Two:

"1st week - some lectures were too high-powered and would have been more appropriate for a group of doctoral candidates in water resources economics."

"2nd week - the hyp. problem was not well thought out - could have been much better organized. 'Floundering' is good to an extent."

The concern about the lack of structure in the exercise by the second trainee was supported by the three remaining participants who returned the questionnaires. One commented that the "groups were very confused about how to carry out their assignments and many did not accomplish any production." He felt that "group assignments should be more definite, critiques by instructors should follow Group presentation, and school solution should be provided at end of each session." Another trainee responded that with one or two exceptions, the first week was "excellent" but the second week "poor." He gave three reasons for his opinion of the second week.

"1. Too little time to deliberately undertake the steps of the planning process.

2. Inadequate planning information.

3. Too broad a range of P & S experience among trainees."

Another trainee echoed the above sentiments noting that because of his "complete lack of knowledge of and experience with the Standards and Principles," he felt a "strong need for more guidance in the work exercise."

The average scores on both aspects of the discussion (quantity - 2.75; quality - 2.75) were a little above average, as were the scores for this day's sessions (2.6) and the overall program (2.8). The comments toward the facilities were all complimentary.

Day 8

This was the last day on which daily evaluation forms were completed and the last noon feedback session was held. At the noon session there was a repetition of the theme of frustration with the simulation. The consensus, however, was that it was going better today. One trainee felt that the frustration was good because it was probably realistic. There was also considerable discussion about the materials that would be available for further training as a result of this program that they can use. All expressed satisfaction with Professor Caulfield's description of the products that will be made available.

Three trainees returned the daily evaluation forms. One trainee was primarily concerned about the diversity of backgrounds of the participants. He felt that perhaps one course could be developed for beginners and another for more experienced planners. Another trainee felt that the case example could have been reduced in complexity in order

to make it manageable for planning in the time allotted. The third trainee commented that the sessions on theory might have been reduced. Otherwise, he was reasonably satisfied.

All comments on the facilities were positive. The ratings on the discussions indicated that the three trainees felt the amount of discussion was "about right" (3.00) and that the discussions were productive (2.00). The day's sessions were rated 2.33 as was the training program up to that point.

Day 9

No systematic information was collected on this day's activities or the trainees' perceptions of these activities. It was the impression of the evaluators that the trainees were moderately pleased with these activities. The program was nearing completion and they appeared to be enjoying the lively interchanges. They also seemed more confident about what was taking place.

Day 10

This was the last day of the program. The formal activities ended at noon and consisted primarily of providing some closure to the program and handing out Certificates of Completion.

In summary, several themes seem to weave throughout the responses of the participants over the ten days of the training program.

1. The varied background and experience of the trainees with the P & S was somewhat of an impediment to the program. It seemed impossible to structure the program to meet the demands of the extremes.

2. The more formal sessions of the first week were too long. Six hours of lecture and discussion a day is a large dose.

3. Generally, the trainees wanted more content dealing with the application and implementation of the P & S than was given.

4. The case study problem was seen as being too unstructured.

5. The meeting facilities and general accommodations were viewed as being exceptional.

6. Evening sessions were not seen as being desirable.

7. Finally, the conscientious attention to detail in program planning and the quick and efficient response by the staff to suggestions for improvements was noted and appreciated by the participants.

OUTCOMES

This section will be primarily concerned with information gathered on attitudes toward the sessions and the program in general and on the acquisition of knowledge by the program participants. The focus will be on the participant's perceptions of the effects of the program. In part, this issue has already been addressed for each day of the program in the previous section. Here our concern will be with the total training program.

Several different methods were used in order to assess the effect of the program on its participants. One method used was to ask the various groups what their expectations were for the program and its trainees and then determine if these expectations had been met. A number of groups were asked to provide the evaluators with their expectations for the training program.

The participants at the Advisory Committee Review Meeting were asked to give their perceptions of the major objectives of the training program. As previously indicated, only six of the eleven participants at the meeting returned their questionnaires. The prime mover in the program, Professor Caulfield, stated the objectives in the following manner:

a. To gain an intellectual and operational understanding and acceptance of the Principles and Standards;

b. To gain an understanding of the operational usefulness of new methodologies (technology) for implementing the P & S;

c. To equip the participants in substantive terms to be discussion leaders back in their own agencies.

The other respondents concurred with these objectives, although they differed in the degree of abstractness with which they phrased the objectives. For example, one advisor saw the objectives of the program as "placing before the group a clear exposition of the Principles and Standards and a practical way to apply them in their real world. Have them participate in the development of that practical way." Another advisor saw the objectives more concretely as:

"a. Uniform understanding of background of Principles and Standards.

b. Up to date knowledge of the tools available to implement application from best minds available.

c. Learning by doing with case study examples."

These examples appeared to catch the essence of the responses of the advisors. It seemed that the objectives of the program were fairly obvious and uniformly agreed on by the advisors.

The observers were also asked to provide us with what they expected the trainees to gain as a result of participation in this training program. Most of the responses could be placed within one or more of the following areas:

a. An increased understanding and/or appreciation of the P & S.

b. Some increase in the ability to implement and apply the P & S in the planning process.

c. The ability to provide training or guidance to others on the P & S or to take a leadership more within his agency in conducting a study in accordance with the P & S.

d. To provide some perspective on the complexity of the process.

e. To gain through the interaction with participants from other agencies.

The observers' expectancies were quite similar to those of the advisers. The most noticeable difference between the two groups was that the observers in many cases appeared more realistic and often had more specific goals than the advisers.

The trainees were also asked what they expected to gain from their participation in the training program. This was asked at the beginning of the program. Their responses coincided with many of those of the observers. However, in general, the trainees' responses seemed more general. The largest number of responses centered around gaining an understanding of the P & S for the application and implementation of these procedures to their planning duties. Several of the trainees were more interested in learning about the viewpoints and interpretations of others of the P & S. Several others felt that they would gain the tools and procedures necessary to train others. Other isolated responses included gaining an understanding of some of the complex measurement procedures; increased ability to explain the Principles and Standards to other professionals; retraining and updating in the subjects covered; and some personal evaluation of the training technique in the program. Clearly, however, the primary emphasis of the trainees was on gaining some practical information on the implementation and application of the P & S that would be of use in their responsibilities.

Hopefully, this evaluation of the expectancies of the various groups for the training program will give the reader some idea of the "mental set" of the participants as they entered the program and how this "mental set" corresponded with the original intent and goals of the program. Some perception of the degree of fit between the various expectancies for the program will enable the reader to

better evaluate the participant's attitudes toward the program at its termination.

At the end of the program, the trainees were asked if the training program had lived up to their expectations for it. Thirty-four of the trainees responded. Sixteen of the trainees responded that it had lived up to their expectations and twelve indicated that it had not. Seven of the trainees said that it had only partially lived up to their expectations. The following list is a summarization of the comments of those trainees responding positively.

1. Expected more controversy; with some changes, methodology and concepts can be used.

2. Really highlighted many problems remaining with implementation of P & S.

3. More, much more than lived up to expectations.

4. Opportunity to hear other's views and raise issues; did not expect to "learn" right answers.

5. Helped to understand how others see P & S and areas of commonality and confusion.

6. Because of diverse levels of understanding, had to make presentations basic and general.

7. Program carried out as anticipated; did not expect all problems and questions to be resolved.

8. Did not expect much.

9. Program well organized and broad; presented by well qualified instructors.

10. Expected a gap between concept and application, this was confirmed.

11. Yes, but wanted more structure.

12. Got additional insights and learned about application and problems to expect in use.

13. (No comment.)

14. Some areas still ambiguous.

15. Gained knowledge of process of plan formulation.

16. Gained general background and understanding.

An inspection of these responses would seem to indicate that these trainees had very realistic expectations for the program. They were not expecting any "cookbook" solutions for the application of the P & S, instead they seemed to expect a clear, thorough exposition of P & S, problems and all and that is apparently what they perceived they got.

The responses and comments of those who felt that the program did not live up to their expectations are given below.

1. Slightly disappointed because first week was too theoretical and no application; no illustrative examples; no clear connection between each session.

2. More experimental research than training program.

3. Organized as a research project not training program; too many unanswered questions; too theoretical and not practical enough.

4. Too abstract; covered "old hat" methodology.

5. Expected definite guidelines, examples and practical exercise.

6. Expected more specific examples illustrating application.

7. Did not deal in practical application; too much theory.

8. Expecting far more rigor.

9. Hoped for more definite answers on policy definition.

10. Seemed more like a research effort.

11. Failed to properly address the issues which were applicable.

12. Training in application in second week not thought through.

These trainees were almost unanimous in their feeling that the course was too theoretical, conceptual and abstract. The practical issues were not felt to have been addressed.

Those trainees who felt that the program had only partially lived up to their expectations gave the following comments.

1. Certain issues not addressed; needed more time.

2. Additional sessions on content of P & S needed.

3. Some way very good; parts seemed to drag.

4. Case study too involved for time available.

5. Wanted to hear more from field planners with experience.

6. Hoping for more attention to application of P & S to real life situations.

These trainees either felt the program lacked time, content or practical application guidance. However, they also were satisfied with many aspects of the program.

It is difficult to make any all inclusive statements about the trainees judgment of the program based on this aspect of the evaluation. Perhaps the bifurcation of opinion of the trainees is a reflection of their backgrounds, some with a great deal of experience and some with very little. The program may have been more successful in meeting the needs of the latter. In some ways, it appears to the evaluators that the expectations of some of the trainees, observers and advisers were not consistent with the objective of the program. Those expecting more concrete guidance were perhaps anticipating more than the program had ever intended to give. If this was the case, it still represents

somewhat of a failure, if no more than in communication. On the whole, however, the evaluators feel that the above represents positive feedback for the program. More trainees were satisfied than were dissatisfied.

Another means by which one can evaluate the outcome of the program is to determine what the participants perceived the good and bad points of the program to be. At the end of the program, the observers and trainees were asked to comment on both the positive and negative aspect of the program and how they might have improved it. A review of the positive aspects of the program will first be presented.

From the observers' viewpoint, by far the most positive aspect of the program was the opportunity to interact with the other participants. Eight of the observers in some way indicated that this was the most positive aspect of the program. A quote from one of the eight best summarizes this position. "The interaction of the total group bringing a variety of perspectives, ideas and levels of knowledge and experience into the learning experience was the biggest plus." Three of the observers indicated that the planning exercise of the second week was the most positive aspect. They liked the "learning by doing" nature of the exercise. Other comments were more diverse and are summarized below.

a. Interface of multi-disciplinary experience with theoretical approaches.

b. Recognition of benefits that may accrue through consientious application of planning procedure of P & S.

c. Presentation of background, concepts and rationale of P & S (3 observers).

d. Excellent facilities and qualified instructors.

e. Presentations of Lijesen, Gidez and Widditsch and discussions that followed.

f. Daily feedback opportunity and adjustments made as a result.

g. General course organization (2 observers).

The trainees were asked to comment on the aspect of the course from which they gained the most. Three areas emerged. Eight of the trainees who responded indicated that the opportunity to interact with the other participants was the part of the program from which they gained the most. The comments were very similar to those of the observers given above. The largest number of trainees felt that the second week in which they actually had the opportunity to apply the P & S was the most beneficial aspect of the program. Twelve trainees made this type of comment. Another group of comments focused on the part of the program which involved an elaboration of the background, concepts, theory and evolution of the Principles and Standards by knowledgeable persons. Six trainees indicated that this was the most valuable part of the program. Two trainees commented that the entire program was extremely beneficial. Two other trainees especially found valuable those aspects of the program presented by experienced planners. Other favorable aspects of the program mentioned are summarized below.

a. Discussion of system of accounts.

b. Better insight into components of objectives.

c. NED lectures of first week.

d. Direct discussion of P & S and policy questions.

e. Elaboration of the political process involved in planning.

Finally, one trainee indicated he had gained most from the "steak dinner."

The lecturers were also asked to provide their perceptions of the strengths and weaknesses of the program. Unfortunately, the return rate on these questionnaires was very small. Many of the lecturers were able to participate in the program for only a short period of time and during the time they were in attendance, they were extremely busy. For the above reasons, the comments of the few lecturers who returned the questionnaires will not be included in this summary.

From the perceptions of the participants, the most positive aspects of the program were seen as the opportunity for interaction with a broad representation of other professionals in the area and the opportunity to actually apply the P & S during the second week of the program. A third area that was mentioned as being the most positive aspect of the program was the presentation of the concepts, background and evolution of the Principles and Standards by knowledgeable and qualified people. This comment was not made as frequently, however.

The other side of the coin was examined when the participants were asked to comment on the weaknesses in the program. The observers were asked to provide the evaluators with their perceptions of the most negative aspects of the program. Five of the observers indicated that some aspect of the planning exercise during the second week were the most negative aspect. Some of the explanations given for this were that the exercise was too unstructured, not allotted enough time, too theoretical, too detailed or based on unrealistic data. Two of the observers felt that the lectures and sessions were too long. Two other observers indicated that the economic orientation of the program was the most negative aspect. Two other observers commented that the diversity of background of the participants was too broad for effective

training. Three of the observers indicated that they could not identify any negative aspects of the program. Other isolated comments were as follows:

a. Program failed to stress what he perceived to be the objectives of the P & S.

b. Each profession talked to itself.

c. Some instructors' lectures were poorly presented.

d. Program was too loosely structured and relaxed.

e. Too much theoretical background.

f. The evaluation sessions 9, 10 and 11 were either too theoretical or poorly prepared.

The trainees were asked to comment on what aspects of the program they felt they had gained the least from. Four of the trainees made no comments to the question and one would assume that they benefited from all aspects of the course. On the other hand, one trainee could find nothing that he liked about the course. The responses of the trainees which could be judged to be somewhere in between these two extremes are more illuminating. Nine of the trainees commented that they gained the least from some aspect of the second week planning exercise. It was too complex, too contrived; not given enough time, lacked coordination with first week or was too involved. Six trainees indicated that they did not profit much from the first week because the content was either not new to them or was a regurgitation of the Principles and Standards which they could just as well have read. Two other trainees didn't gain much from the first week's lectures because they were too long. One trainee did not gain from the first's week's lectures becasue he felt they were too technical. Seven of the trainees

did not profit much from lectures with a specific emphasis. Their emphasis was largely theoretical. The areas mentioned were:

a. Economic theory and philosophy.

b. Modeling concepts.

c. Theory of analysis.

d. "State of the art" lectures.

e. Systems analysis.

Other isolated responses are summarized below:

a. Not enough free time.

b. Group sessions were not structured enough.

c. Several specific lectures.

It is interesting to note that the modal responses to the questions directed toward defining the weaknesses of the program were quite similar to the modal responses to the questions concerned with defining the strengths of the program. The weaknesses of the program were generally perceived as being some aspect of the planning exercise, the theoretical emphasis of the first week and the failure to provide new information during the first week. Overall, based on the above comments, the evaluators feel that the program came out looking very good. Generally, the reactions of the participants appear positive. Before proceeding on to another method of evaluating the outcome of the program, it might be beneficial to briefly examine some of the ways in which the participants felt the program could have been improved.

For the most part, the suggestions offered by the observers for improving the program follow directly from their criticisms of the program. These suggestions are briefly summarized below.

1. Reduce the theoretical emphasis of the program and concentrate on practical matters of application.

2. Provide more structure to the planning exercise.

3. De-emphasize or concentrate material presented in first week.

4. Provide more variety in the methods of presenting information.

5. Shorten the lectures and involve the participants more through discussion.

The trainees suggestions for improvements in the program also were logical extensions of their criticisms of the program. Among the suggestions they offered were:

1. Expanding the simulation exercise.

2. Providing more structure to the planning exercise.

3. Reduce the length of the program.

4. Raise level of presentations to level of experienced planners.

5. Provide more information on practical application of P & S and less theory.

6. Mix lectures into problem.

7. Simplify the case study example.

To the credit of the program staff, it should be noted, that many of these suggestions had been discussed during the development of the training program, but were discarded for various reasons.

Another method by which one can evaluate the outcomes of the program is through an examination of the attitudes of the participants to various aspects of the program before and after they had attended. This was done by asking the trainees to respond to a group of statements by indicating their degree of agreement or disagreement with the statements based on a five-point scale. Parallel statements were

contained in the beginning and end-of-course questionnaires in order to make a "pre-post" comparison. The pre-questionnaire was completed by forty-three (43) trainees and the post-questionnaire by thirty-three (33) trainees. The mean responses on the items of the pre- and post-questionnaires are present in the following table. The mean score was computed on the basis of assigning a "1" to a "strongly agree" response, a "2" to an "agree" response, a "3" to a "neutral" response, a "4" to a "disagree" response and a "5" to a "strongly disagree" response. Statement No. 1 in category refers to the pre-questionnaire item while statement No. 2 refers to the parallel post-course questionnaire item.

		$\bar{X}$ RESPONSE PRE	$\bar{X}$ RESPONSE POST
1.	I expect to gain much useful information from this training experience.	1.72	
2.	I gained a lot of useful information from this training experience.		2.49
1.	The training provided by this program should make my job a little easier.	1.95	
2.	The training provided by this program will make my job a little easier.		2.29
1.	There has been little occasion for me to use the Principles and Standards in my job.	3.47	
2.	There will be little occasion for me to use the Principles and Standards in my job.		4.06
1. and 2.	There seems to be a good deal of ambiguity in the Principles and Standards.	2.40	2.15
1.	Even without this course I could do a reasonably good job of teaching others how to interpret and apply the Principles and Standards.	3.37	
2.	With the benefits of this course, I now feel I could do a reasonably good job of teaching others how to interpret and apply the Principles and Standards.		2.39
1.	I feel that I am reasonably knowledgeable in the procedures and technology necessary to implement the Principles and Standards.	2.98	
2.	I now feel that I am reasonably knowledgeable in the procedures and technology necessary to implement the Principles and Standards.		2.30
1.	I believe that even without this course I could do a competent job of applying the Principles and Standards to water resources planning.	3.21	
2.	I believe that I can now do a competent job of applying the Principles and Standards to water resources planning.		2.28

As one can see some of the attitudinal shifts are in directions which are positive to the program and some are in directions which are negative to the program. The trainees were in stronger agreement that the program would provide them with useful information at the beginning of the program than at the end. This was also true concerning their attitude about the program making their job easier. It should be noted, however, that in both cases the majority of trainees were still in agreement with these statements. At the end of the program, the trainees felt that there would be more occasion for them to use the P & S; that they could do a better job of teaching others to interpret and apply the P & S; that they were more knowledgeable in the procedures and technology necessary to implement the P & S; and that they could do a more competent job of applying the P & S to water resources planning than at the beginning of the program. Before the program, the trainees had generally given neutral responses in the areas. At the end of the program, their responses were more positive. The trainees, indicated that they agreed that the P & S were ambiguous in many respects before the program and indicated that they agreed with this even more at the conclusion of the program. Most of the shifts in attitudes, however, were in a positive direction and indicate an overall beneficial impact of the program and the trainees.

A few of the statements were asked only either on the pre- or post-questionnaires. These statements are presented in the following table.

		$\bar{X}$ RESPONSE PRE	$\bar{X}$ RESPONSE POST
1.	One of the major responsibilities of my present position is water resources planning.	1.49	N/A
1.	My present position requires that I have a rather thorough understanding of the Principles and Standards.	1.58	N/A
2.	In general, the lecturers seemed very knowledgeable in the areas on which they spoke.	N/A	2.15
2.	This training program has added more confusion to my understanding of the Principles and Standards than it has cleared up.	N/A	3.62
2.	I would like to attend a course like this again.	N/A	2.90
2.	This training program concentrated too much on concepts and not enough on applications.	N/A	2.42

From the average response to the first two statements, our former conclusion that this program should have been perceived by the trainees as being very significant to them is supported. The other statements attempted to provide further clarification to areas which have been assessed through a variety of methods. Generally, the trainees agreed that the lecturers were very knowledgeable in the area on which they spoke. The trainees did not feel that the program added more confusion to their understanding of the P & S. Most trainees were neutral with respect to whether they would like to attend a course like this again. There was general agreement, however, that the course concentrated too much on concepts. This last finding supports previous findings.

Another measure of the impact of the training program on the participants was concerned with the trainee's perception of his understanding and application of several general areas discussed in the P & S. Each trainee was given a questionnaire at the beginning of the program on which he was ". . .to indicate both the degree to which you feel you presently understand each area and the extent to which you feel you have made application of these areas in your present position by placing a check mark along the place on the seven point scale which most closely corresponds to your self-perceptions in these areas." At the end of the program, the trainees were again given the questionnaire and asked to respond with both their understanding and the degree to which they should make application of these areas. There were forty-two (42) trainees who completed the pre-questionnaire and thirty-four (34) who completed the post-questionnaire.

The mean response to the items on the pre- and post-questionnaires are presented in the following tables. Mean scores were computed on the basis of assigning numbers to the positions on the seven-point continuation with a "7" being assigned to a response of "very much," "4" to a response of "average" and "1" to a response of "very little." Therefore a low number would indicate little "understanding" or "use" while a high number would indicate more "understanding" or "use." Changes from some mean score at the beginning of the program is a higher mean score at the end of the program would be evidence of a positive impact of the program on the trainees.

		UNDERSTANDING		APPLICATION	
		PRE	POST	PRE	POST
1.	Economic projections in the development of the NED and RD accounts.	3.71	4.77	3.40	4.41
2.	Environmental projections in the development of the EQ accounts.	3.48	4.21*	3.34	4.44
3.	Measurement procedures for the NED and EQ effects.	3.52	4.97	3.12	4.88
4.	Allocation of benefits and costs to the system of the four accounts.	3.05	4.59	2.59	4.71
5.	Involvement of the public in the decision-making processes.	4.69	5.59	4.05	5.27
6.	The basic steps in the plan formulation processes.				
	a. Identification of the problems and specification of the components.	4.52	5.47	4.22	5.21
	b. Evaluation of the resources-Determination of the without.	4.41	4.65*	3.98	4.27*
	c. The development of alternative plans.	4.64	5.44	4.00	5.21
	d. Comparison of alternative plans.	4.42	5.56	4.02	5.35
	e. Selection of a recommended plan.	4.31	5.47	3.59	5.21

An inspection of the table reveals that with few exceptions, changes were significant and all were in the expected direction. Based on the mean response of the trainee, a significant gain in understanding was perceived as having taken place. The trainees were also apparently more inclined to view the areas assessed as being applicable to their

present duties after having participated in the training program. Both these findings speak well for the program and indicate a beneficial impact.

Several additional questions were included on the end-of-course evaluation form in an attempt to examine various aspects of the impact of the program on the participants. The trainees were asked to rate the content level of the material covered in the program and their feelings about the amount of material covered. Five point rating scales were used. On the content levels rating scale, a response of "too advanced" was assigned a score of "1," a response of "about right" was given a "3" and a "5" was assigned to a response of "too simple." For the rating scale dealing with amount of material covered, a response of "too much material" was assigned a score of "1," "about right" a score of "3" and a response of "too little material" was assigned a score of "5." The mean responses for the thirty-three (33) trainees who returned the questionnaire are presented in the following table.

	$\bar{X}$ RESPONSE
Content Level	3.06
Quantity of Material	2.73

These responses would indicate that on the average, the trainees felt that the content level of the material was about right as was the quantity of material presented. However, there was a slight tendency to feel that too much material was presented.

The trainees were also asked to provide both the approximate percentage of material presented in the program that was new to them and was familiar to them. These data are summarized below:

PERCENTAGE	NEW N	FAMILIAR N
0 - 9	4	1
10 - 19	4	1
20 - 29	9	0
30 - 39	4	2
40 - 49	1	0
50 - 59	7	8
60 - 69	1	3
70 - 79	1	5
80 - 89	1	7
90 - 100	1	5
$\bar{X}$	32.33%	64.63%

It would appear that generally, more of the material was familiar to the trainees than was new to them. We would expect this from the previous remarks that have been made. Once again, the bifurcation of those with much experience and those with little experience in the area appears.

The trainees were asked to select which, if either, of the two weeks of the training program seemed more valuable to them. This was done because of the logical distinction between the type of activities in the two weeks. The second week was chosen by twenty-one (21) of the trainees, the first week by five (5), both weeks by five (5) and neither of the weeks by two (2) of the trainees. As this was an arbitrary distinction, the figures should not be construed as meaning that the trainees who selected one week did not find the other week

valuable in some ways, too. Clearly, however, the second week was seen as being the more useful of the two weeks which is congruent with our previous findings.

One question to which the trainees were asked to respond dealt with their perceptions of the adequacy of several areas of the program. The mean responses to these are presented in the following table. Again, a five-point rating scale was used and the means were computed by assigning the score of "1" to an "excellent" rating, "3" to an "average" response and "5" to a response of "poor."

	$\bar{X}$ RESPONSE
Housing Facilities	2.09
Meeting Facilities	1.32
Lectures	2.52
Program Organization	2.29

All of these ratings are indicative of favorable responses toward the program by the trainees. Based on the average response, the housing facilities were viewed as being good; the meeting facilities were seen as being excellent; the lecturers were viewed as being only slightly above average in general and the program organization was perceived as being good.

When asked to rate the course length on a five-point scale with a response of "too long" being assigned a score of "1," "about right" being assigned a score of "3" and "too short" a score of "5," the trainees indicated that the course was slightly longer than desired by the average response ($\bar{X}$ = 2.41). This, too, is supportive of previous findings.

Finally, two questions were included in order to obtain some indication of the overall response of the participants to the program. The trainees were asked if they would recommend this course to their colleagues. Twenty-five (25) trainees responded positively and nine (9) trainees responded negatively. The observers were asked if they would have liked to have been an active participant in the training program. In retrospect, this question was somewhat inappropriate because many of the observers were active participants. However, six (6) of the observers returning the questionnaire responded with a "Yes" and fourteen (14) observers responded with a "No." The difference in the response distributions of the trainees and the observers may have been because of the inappropriateness of the observer question and the different connotation it had. Clearly, the trainees would recommend this course to their colleagues, however.

The last question asked the observers and the trainees to indicate their overall rating of this program. The responses are summarized below. The mean responses were computed in a manner similar to that used for the previous rating scale.

	Observer N	Trainee N
Excellent	1	2
Good	12	15
About Average	6	13
Poor	1	3
Bad	0	0
$\bar{X}$	2.35	2.52

Both the observers and the trainees appear to have agreed that the program was moderately successful.

In conclusion, several findings appear to warrant repetition. From the perspective of the evaluators, the conscientious efforts of the staff in preparing for this program were far superior to those of a number of projects with which we have been associated. This effort appeared to have been duly noted by the participants. Numerous compliments to the staff for their concern with the needs of the participants were made by the trainees and observers. Almost without exception, the participants felt that the CSU facilities were excellent ones in which to conduct this type of a training program. Perhaps the biggest drawback to the program was the diversity of participants with regard to their backgrounds and experiences with the P & S and water resource planning. It appeared to have been impossible to meet the needs of all these participants. This diversity also was most likely a factor in the several contradictory areas of evaluation of the program by the participants. For example, the planning exercise was criticized for its lack of structure, but also was seen as being one of the strong points of the program because of its concern with application. This same type of nonconsistent evaluation was seen when many participants noted that the conceptual and theoretical concerns of the first week were not appreciated. However, another group of participants found this to be a positive aspect of the program.

Most likely the opportunity to interact with other professionals in the area was viewed as being beneficial by all the participants and was the strongest component of the program.

Overall, we would feel confident in concluding that, based on the above findings, and our own perceptions, the training program was a most successful venture.

EVALUATION PLAN FOR PROJECT

ENTITLED

Transfer of Technology-Training of Government Personnel in the Application of Principles, Standards and Procedures for Planning of the Water Resources Council.

The purpose of this document is to define a plan for gathering information about the Transfer of Technology Program which will be used for making evaluative judgments about the program. In addition, logistic support in the form of secretarial assistance is requested. The plan is presented in the form of a time schedule.

Present to July 14:

1. Participate as much as possible in Phase I of the program which is concerned with designing the training activities. The purpose of our participation will be to increase our awareness of the intended purposes, content, and procedures of the training session.

2. Assist in designing the Advisory Committee review session. A form will be developed for obtaining information from Advisory Committee members regarding their critical review.

3. Design a form for gathering relevant background information on the 30-50 persons who will participate as trainees.

July 15 to July 16:

1. Participate in the Advisory Committee review session.

2. Administer form to the Advisory Committee members.

July 17 to August 7:

1. Participate in the program revision activities.

2. Develop the following instruments:

a. Two forms of a twenty-five item knowledge test over the training program content. The items will be based on the objectives of the separate program activities.

b. A session reaction form which will be completed by a sample of the participants at each session. Different samples will be selected for each administration.

c. A reaction form for the non-participant observers.

d. A reaction form for the instructors in the training session.

e. A reaction form for the program administrators.

f. An observation form to be used as a guide for our participant-observations.

g. A general reaction form for the participants.

August 8 to August 9:

1. Observe the teachers' session for TV training.

August 12 to August 23:

1. Conduct the evaluation of the training program as follows:

a. Administer one form of the knowledge test as a pretest on August 12.

b. Administer session reaction forms to samples at each session. Summarize reactions for use in the final production of the materials.

c. Observe sessions using the observation form. Summarize results for sessions to use in the final production.

d. Administer reaction form to the non-participant observers. Do this before they have departed or before August 22.

e. Administer the instructor reaction forms upon completion of the instructor's activity. Use these results in planning the final production.

f. Administer general participant reaction form on August 22 to all trainers.

g. Administer second form of the knowledge test as a post test on August 22.

h. Administer reaction form to program administrators. This may be accomplished via an interview at the end of the program.

August 24 to September 15:

1. Analyze and summarize the information obtained.

2. Prepare a first draft of the evaluation report and submit for critique to the program administrators.

September 15 to September 30:

1. Prepare the final draft of the evaluation report. The report will be written in the following general format:

a. Context or antecedent conditions-this will include information about program development, participant and staff characteristics, and the context of the situation at CSU.

b. Transaction or process information-this section will be directed toward describing the procedures used in the training program.

c. Outcomes-this will include information on attitudes toward the sessions and the program in general and on the acquisition of knowledge by the program participants.

In order to expedite the completion of the above evaluation activities, it is requested that some arrangements be made to provide the evaluators with secretarial assistance. This assistance would primarily take the form of typing rough drafts and final copies of the evaluation reports and instruments. In addition, other activities, such as duplication of

reports, providing the evaluators with information about participants and the activities in the program and insuring that we are informed of the schedules of the program, would be desirable assistance from the secretarial staff.

Appendix 2

Water Resources Training Program
Trainee Questionnaire

1. Organizational Affiliation _____

2. Age _____ Sex _____

3. Educational Background:

High School	_____
Some College	_____
Associate Degree	_____
Undergraduate Degree	_____
Some Graduate Work	_____
Masters Degree	_____
Ph.D.	_____

4. How long have you been involved in water resources planning? _____ Years

5. Approximate period of time since LAST major participation in a formal educational experience. _____ Years _____ Months

6. In what level of planning are you typically involved?

Level A (Framework studies and assessments)	_____ %
Level B (Regional or river basin plans)	_____ %
Level C (Implementation studies)	_____ %
Not typically involved in planning	_____
Other (Please specify)	_____

7. Why were you selected for attendance to this training program?

8. What do you expect to gain by your participation in this training program?

9. What do you expect to like the most and the least about this training program as you presently understand it?

MOST

LEAST

10. How much experience have you had with the present Principles and Standards? (Check one)

____ None ____ Very Little ____ Average ___ More Than Average ____ Great Deal

Comments:

11. Please indicate the extent of your agreement or disagreement with the following statements by checking the appropriate blank. Space has been provided below each statement for you to make comments about any of the statements or your ratings if you would like to do so.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
One of the major responsibilities of my present position is water resources planning.	___	___	___	___	___
I expect to gain much useful information from this training experience.	___	___	___	___	___
The training provided by this program should make my job a little easier.	___	___	___	___	___
There has been little occasion for me to use the Principles and Standards in my job.	___	___	___	___	___
There seems to be a good deal of ambiguity in the Principles and Standards.	___	___	___	___	___
My present position requires that I have a rather thorough understanding of the Principles and Standards	___	___	___	___	___

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Even without this course I could do a reasonably good job of teaching others how to interpret and apply the Principles and Standards.	___	___	___	___	___
I feel that I am reasonably knowledgeable in the procedures and technology necessary to implement the Principles and Standards.	___	___	___	___	___
I believe even without this course I could do a competent job of applying the Principles and Standards to water resources planning.	___	___	___	___	___

Water Resources Training Program
Trainee Questionnaire
(Form B)

Organizational Affliation_____

Date of arrival_____ Number of days attended_____

1. Did this training program live up to your expectations for it? Please comment.

2. What aspects of the course do you feel you gained the most from and why?

3. What aspects of the course do you feel you gained the least from and why?

4. What improvements (changes, additions, deletions) would you like to see implemented in this training program?

5. What were your reactions concerning the content level of the material covered in the training program?

Too Advanced		About Right		Too Simple
_____	_____	_____	_____	_____

Too Much Material		About Right		Too Little Material
_____	_____	_____	_____	_____

Comments:

6. Approximately what percentage of the material presented in this program was new to you? _____% Familiar to you? _____%

7. Which if either of the two weeks of the training program seemed more valuable to you; the first week (lecture-discussion), the second week (simulation exercise-discussion)?

8. Could you briefly comment on some of the major topics or aspects of the Principles and Standards that still seem unresolved, need further clarification or are ambiguous? (Points which should be brought to the attention of the Water Resources Council)

9. Please rate the adequacy of the following and provide any comments which will assist in interpreting your ratings.

	Excellent		Average		Poor
Housing facilities	___	___	___	___	___
Comments:					
Meeting facilities	___	___	___	___	___
Comments:					
Lecturers	___	___	___	___	___
Comments:					
Program organization	___	___	___	___	___
Comments:					

10. Was the course too long or too short?

Too long		About right		Too short
____	____	____	____	____

Comments:

11. Would you recommend this course to your colleagues? _____Yes _____No

12. Please indicate your overall ratings of this program.

____Excellent ____Good ____About average ____Poor ____Bad

13. Below are some statements, many of which are given to you at the beginning of this program. We are interested to see if your attitudes have changed. Please indicate the degree of your agreement or disagreement with the following statements by checking the appropriate blank after each statement. Space has been provided below each statement for you to make any comments about any of the statements or your ratings if you would like to do so.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
In general the lecturers seemed very knowledgeable in the areas on which they spoke.	____	____	____	____	____
I gained a lot of useful information from this training experience.	____	____	____	____	____
The training provided by this will make my job a little easier.	____	____	____	____	____
There will be little occasion for me to use the Principles and Standards in my job.	____	____	____	____	____
There semms to be a good deal of ambiguity in the Principles and Standards.	____	____	____	____	____
This training program has added more confusion to my understanding of the Principles and Standards than it has cleared up.	____	____	____	____	____

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
With the benefits of this course, I now feel I could do a reasonably good job of teaching others how to interpret and apply the Principles and Standards.	___	___	___	___	___
I now feel that I am reasonably knowledgeable in the procedures and technology necessary to implement the Principles and Standards.	___	___	___	___	___
I believe that I can now do a competent job applying the Principles and Standards to water resources planning.	___	___	___	___	___
I would like to attend a course like this again.	___	___	___	___	___
This training program concentrated too much on concepts and not enough on applications.	___	___	___	___	___

14. Would you please give your suggestions for the input into the final Training Mannual? What areas and topics do you want to see covered? What materials should be included? Please be as specific as possible in your suggestions.

15. Other comments:

Water Resources Training Program
Trainee Questionnaire
Self-Perception of Understanding & Usage

Instructions: Below are a list of areas considered in the Water Resources Council's Principles and Standards for Planning. We would like you to indicate both the degree to which you feel you presently understand each area and the extent to which you feel you have made application of these areas in your present position by placing a check mark along the place on the seven point scale which most closely corresponds to your self-perceptions in these areas.

1. Economic projections in the development of the National Economic Development and Regional Development accounts.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

2. Environmental projections in the development of the Environmental Quality accounts.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

3. Measurement procedures for National Economic Development and Environmental Quality effects.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

4. Allocation of benefits and costs to the system of the four accounts.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

5. Involvement of the public in the decision-making processes.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

6. The basic steps in the plan formulation process.

a. Indentification of the problems and specification of the components.

UNDERSTANDING					APPLICATION				
Very Much			Average	Very Little	Very Much			Average	Very Little
___	___	___	___ ___ ___	___	___	___	___	___ ___ ___	___

b. Evaluation of the resources - Determination of the "Without" situation.

UNDERSTANDING					APPLICATION				
Very Much			Average	Very Little	Very Much			Average	Very Little
___	___	___	___ ___ ___	___	___	___	___	___ ___ ___	___

c. The development of alternative plans.

UNDERSTANDING					APPLICATION				
Very Much			Average	Very Little	Very Much			Average	Very Little
___	___	___	___ ___ ___	___	___	___	___	___ ___ ___	___

d. Comparison of alternative plans.

UNDERSTANDING					APPLICATION				
Very Much			Average	Very Little	Very Much			Average	Very Little
___	___	___	___ ___ ___	___	___	___	___	___ ___ ___	___

e. Selection of a recommended plan.

UNDERSTANDING					APPLICATION				
Very Much			Average	Very Little	Very Much			Average	Very Little
___	___	___	___ ___ ___	___	___	___	___	___ ___ ___	___

Water Resources Training Program
Trainee Questionnaire
Self-Perception of Understanding & Usage

Instructions: Below are a list of areas considered in the Water Resources Council's Principles and Standards for Planning. At the beginning of this program, we asked that you indicate both the degree of your understanding of these areas and the extent to which you felt you had made application of these areas in your present job. In an attempt to assess your own perceptions of some of the impact of this program, we would again like you to indicate both the degree to which you now feel you understand these areas and the degree to which you feel you should make application of these areas in your present position by placing a check mark along the place on the seven point scale that most closely corresponds to your self-perceptions in these areas.

1. Economic projections in the development of the National Economic Development and Regional Development accounts.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

2. Environmental projections in the development of the Environmental Quality accounts.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

3. Measurement procedures for National Economic Development and Environmental Quality effects.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

4. Allocation of benefits and costs to the system of the four accounts.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

5. Involvement of the public in the decision-making processes.

UNDERSTANDING							APPLICATION						
Very Much			Average			Very Little	Very Much			Average			Very Little
___	___	___	___	___	___	___	___	___	___	___	___	___	___

6. The basic steps in the plan formulation process.

a. Indentification of the problems and specification of the components.

UNDERSTANDING				APPLICATION			
Very Much		Average	Very Little	Very Much		Average	Very Little
___ ___	___ ___	___	___ ___	___ ___	___ ___	___	___ ___

b. Evaluation of the resources - Determination of the "Without" situation.

UNDERSTANDING				APPLICATION			
Very Much		Average	Very Little	Very Much		Average	Very Little
___ ___	___ ___	___	___ ___	___ ___	___ ___	___	___ ___

c. The development of alternative plans.

UNDERSTANDING				APPLICATION			
Very Much		Average	Very Little	Very Much		Average	Very Little
___ ___	___ ___	___	___ ___	___ ___	___ ___	___	___ ___

d. Comparison of alternative plans.

UNDERSTANDING				APPLICATION			
Very Much		Average	Very Little	Very Much		Average	Very Little
___ ___	___ ___	___	___ ___	___ ___	___ ___	___	___ ___

e. Selection of a recommended plan.

UNDERSTANDING				APPLICATION			
Very Much		Average	Very Little	Very Much		Average	Very Little
___ ___	___ ___	___	___ ___	___ ___	___ ___	___	___ ___

Water Resources Training Program
Daily Trainee Questionnaire

1. Date_____

2. Please circle all those sessions which took place during the day of the training program you are rating and which you attended.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
37 38 39 40

3. What were your impressions of the discussions today?

Too much	About right	Too little	Very productive					Very unproductive
___	___	___	___	___	___	___	___	___	___

Comments:

4. Please indicate your rating of today's sessions.

__Excellent __Good __Average __Poor __Very poor

Comments:

5. Please indicate your overall rating of the training program up to this point.

__Excellent __Good __Average __Poor __Very poor

Comments:

6. What have been your general reactions to the structure of the training program to date? (Areas which you might consider here are: length of sessions; Do the topics hang together?; Would you like evening sessions?)

7. What, if any, adverse or positive reactions do you have to the meeting and housing facilities and general accomodations thus far?

8. Other Comments:

Water Resources Training Program
Individual Session Questionnaire

Please complete one of these questionnaires for each lecture you heard today.

1. Session No. _____ Date: _____
   Name of lecturer: _____

2. What were your impressions of the strengths and weaknesses of this lecturer?

   Strengths:

   Weaknesses:

3. Could any of the material presented in this session have been left out because it was ____"old hat" ____boring ____irrelevant ____too detailed

   ____Yes ____No

   Please very briefly indicate what the material was that you feel could have been excluded and your reasons for doing so.

4. What if any information was not covered in the lecture that you feel would have been appropriately covered in this lecture?

5. Would you briefly comment on any areas of the Principles and Standards discussed in this session that still seem unresolved, need further clarification or are ambiguous. (Points that you feel should be brought to the attention of the Water Resources Council.)

6. Please indicate the extent of your agreement with the following statements by checking the appropriate blank. If you wish to make any comments which might help to clarify your ratings please feel free to do so.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The information presented in this lecture was very useful to me.	___	___	___	___	___
The lecturer was very knowledgeable in the area on which he spoke.	___	___	___	___	___
For the most part, the lecture held my interest.	___	___	___	___	___
The information presented in this lecture was relatively new to me.	___	___	___	___	___
I would not mind hearing this speaker lecture again.	___	___	___	___	___

7. Other Comments:

Water Resources Training Program
Observers Questionnaire

1. Organizational affiliation_____

2. Age_____ Sex_____

3. Educational background:

High school	_____
Some college	_____
Associate degree	_____
Undergraduate degree	_____
Some graduate work	_____
Masters degree	_____
PhD	_____

4. How long have you been involved in water resources planning? ____Yrs.

5. Approximate period of time since LAST major participation in a formal educational experience? ____Yrs. ____Mths.

6. In what level of planning are you typically involved?

Level A (Framework studies and assessments)	_____%
Level B (Regional or river basin plans)	_____%
Level C (implementation plans)	_____%
Not typicall involved in planning	_____
Other (Please specify)	_____

7. How much experience have you had with the present Principles and Standards?

____None ___Very little ____Average ____More than average ____Great deal

Commments:

8. Please circle all those sessions which you attended. Circle a session even though you may not have stayed through the entire session.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
37 38 39 40

9. Why are you attending this training program?

10. What do you expect the trainees to gain as a result of participation in this program?

11. What do you feel were the most positive aspects of this program and please indicate why you feel that way?

12. What do you feel were the most negative aspects of this program and please indicate why you feel that way?

13. How could this program have been improved? (Any changes, deletions, or additions.)

14. Please indicate your overall rating of this program.

____Excellent ____Good ____About average ____Poor ____Bad

15. Would you have liked to have been an active participant in this training program? ____Yes ____No

Comments::

16. Other Comments:

Water Resources Training Program
Instructor Questionnaire

1. Please circle all those sessions in which you participated or which you attended.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

2. How long have you been associated with or involved in the field of water resources? _____ Years _____ Have not been involved.

   Comments:

3. Educational background (Example: Masters in Engineering plus some doctoral hours): _____

   _____.

4. Please indicate the degree to which you felt qualified to speak on the topic or topics which you were _____ assigned or _____ selected.

Very Qualified		About Average		Not Very Qualified
_____	_____	_____	_____	_____

   Comments:

5. Please indicate the extent of your agreement or disagreement with the following statements by checking the appropriate blank. Feel free to make any clarifying comments or ratings, if you wish.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I felt that my lecture for this program went very well.	____	____	____	____	____
This training program should be a very valuable experience to those participating in it.	____	____	____	____	____

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I would like to participate in this type of training program again.	____	____	____	____	____

Comments:

6. Would you briefly comment on your impressions of the strengths and weaknesses of this training program.

Strengths:

Weaknesses:

7. How could this program have been improved? (Any changes, deletions or additions)

8. Please indicate your overall rating of this training program.

____ Excellent ____ Good ____ Average ____ Poor ____ Very Poor

9. Other Comments:

WATER RESOURCES TRAINING PROGRAM

COLORADO STATE UNIVERSITY

August 12-23, 1974

ROSTER OF PARTICIPANTS

O-OBSERVER T-TRAINEE		RECEIVED CERTIFICATE	O-OBSERVER T-TRAINEE		RECEIVED CERTIFICATE
Donald Baker Department of Commerce Rockville, Maryland	O	X	Jack L. Davis (Second Week) Tennessee Valley Authority Knoxville, Tennessee	T	
Roger Banks Fish and Wildlife Service Salt Lake City, Utah	T	X	G.E. Dickey Office of the Secretary of the Army Washington, D.C.	O	
Nicholas L. Barbarossa (First Week) Missouri River Basin Commission Omaha, Nebraska	O		William Donovan Office of Corps of Engineers Washington, D.C.	O	
Edmund Barbour E & R Center Denver, Colorado	O		Jack D. Edwards Bureau of Land Management Denver, Colorado	O	
D. Craig Bell Western States Water Council Salt Lake City, Utah	O	X	Albert J. Erickson Environmental Protection Agency Washington, D.C.	O	
Robert Bergman National Park Service Washington, D.C.	O		Douglas Faris National Park Service Washington, D.C.	T	X
John E. Brown Mississippi Board of Water Commissioners Jackson, Mississippi	O		Richard K. Faubel Federal Power Commission Washington, D.C.	T	X
Edward A. Cohn Corps of Engineers Washington, D.C.	T	X	Gene Forbes Fish and Wildlife Service Denver, Colorado	T	X
Edward P. Cook Soil Conservation Service Portland, Oregon	T	X			

O-OBSERVER T-TRAINEE		RECEIVED CERTIFICATE
James Freeman (Second Week) 12th Independence Ave., S.W. Washington, D.C.	O	
Karl Gertel U.S.D.A. Washington, D.C.	T	X
Truman Goins Housing and Urban Development Washington, D.C.	O	
Lawrence R. Green (First Week) Corps of Engineers Fort Belvoir, Virginia	T	X
Ellsworth J. Gullidge Pacific Northwest River Basin Commission Vancouver, Washington	T	X
Carroll M. Hamon Missouri River Basin Commission Lincoln, Nebraska	T	X
Paul A. Hansen Department of Transportation Washington, D.C.	T	X
Adrian L. Haught U.S.D.A.-Forest Servie Washington, D.C.	T	X
Alan Hersch (Second Week) Missouri Riber Basin 10050 Regency Cr. Omaha, Nebraska	O	
Royal G. Holl Bureau of Land Management Santa Fe, New Mexico	T	X
Gene H. Hollenstein Minnesota Department of Natural Resources St. Paul, Minnesota	T	X
C.H. Jack Hull Delaware River Basin Commission Trenton, New Jersey	T	X
George S. Jennings Bureau of Indian Affairs Denver, Colorado	T	X
Paul P. Johnson, Jr. Forest Service Washington, D.C.	T	X
Jim Jordan (First Week) Corps of Engineers Washington, D.C.	T	
Gus J. Karabasos Corps of Engineers Omaha, Nebraska	T	X
Karl R. Klingelhofer Soil Conservation Service Washington, D.C.	O	X
Marc A. Koenings Bureau of Outdoor Recreation Washington, D.C.	T	X
Robert E. Kohnke Soil Conservation Service Washington, D.C.	O	X
Norman E. Landgren U.S.D.A.-Economic Research Service Lincoln, Nebraska	T	X
Robert K. Lanky Bureau of Reclamation Boise, Idaho	T	X

O-OBSERVER T-TRAINEE		RECEIVED CERTIFICATE
James Donald Latham Housing and Urban Development Denver, Colorado	T	X
William D. Lawson Bureau of Outdoor Recreation Washington, D.C.	O	X
Haydn C. Lee, Jr. Bureau of Reclamation Sacramento, California	T	X
Ten Shee Lee Pennsylvania Department on Environmental Resources Harrisburg, Pennsylvania	T	X
John T. Lewis Soil Conservation Service Upper Darby, Pennsylvania	T	X
Patrick McAuley Department of Commerce Washington, D.C.	T	X
Robert P. Martin Bureau of Outdoor Recreation Ann Arbor, Michigan	T	X
Ralph A. Mashburn Soil Conservation Service Washington, D.C.	T	X
Keith Muckelson (Second Week) Water Resources Council 2120 L Street, N.W. Washington, D.C.	O	
Kenneth H. Murdock Corps of Engineers Washington, D.C.	O	
Edward M. Novack Environmental Protection Agency Kansas City, Missouri	T	X
W. Glenn O'Neal (First Week) Tennessee Valley Authority Knoxville, Tennessee	T	
Richard D. Parker Soil Conservation Service Washington, D.C.	T	X
Don Parsons Water Resources Council, Staff Washington, D.C.	O	X
R. Douglas Peet Soil Conservation Service Fort Worth, Texas	T	X
Roy E. Peterson Upper Mississippi River Basin Commission Twin Cities, Minnesota	T	X
Dick L. Porter Bureau of Reclamation Washington, D.C.	O	
Thomas Rachford (Second Week) Consultant to Ohio River Basin Commission Cincinnati, Ohio	O	
Peter Ramatowski Corps of Engineers Washington, D.C.	O	

O-OBSERVER T-TRAINEE		RECEIVED CERTIFICATE
Fred Rasmussen Soil Conservation Service Portland, Oregon	T	X
Warren D. Reynolds Idaho Department of Water Resources Boise, Idaho	T	X
Barry G. Rought Corps of Engineers Dallas, Texas	T	X
Ron Sadler Bureau of Land Management Portland, Oregon	T	X
Ralph A. Schmidt Office of Land use Planning Department of the Interior Washington, D.C.	O	X
Robert Shelton Water Resources Council Washington, D.C.	O	
Kent Shuyler (Second Week) Bureau of Reclamation Littleton, Colorado	O	
Arthur Simkins Texas Water Development Board Austin, Texas	T	X
Kermit V. Speeg Corps of Engineers San Francisco, California	C	X
William J. Steele South Carolina Water Resources Commission Columbia, South Carolina	T	X
Jon-Eric T. Stenson Environmental Protection Agency Chicago, Illinois	T	X
James W. Teeter Fish and Wildlife Service Portland, Oregon	T	X
Stephen M. Thrasher Ohio River Basin Commission Cincinnati, Ohio	T	X
Otis Trimble Housing and Urban Development Washington, D.C.	O	
Robert Vining Washington State Department of Ecoloby Vancouver, Washington	T	X
Kenneth Voss Soil Conservation Service Lincoln, Nebraska	T	X
Irvin M. Waitsman New England River Basins Commission Boston, Massachusetts	T	X
Gerald Welsh Soil Conservation Service Washington, D.C.	O	X
Barbara J. West (First Week) National Commission on Water Quality Washington, D.C.	O	

OTHERS RECEIVING CERTIFICATES OF COMPLETION

Instructors

Emil W. Adam, Corps of Engineers)

Leonard T. Crook, Great Lakes River Basin Commission)

Don Jones, Soil Conservation Service) 4 Instructor Certificates

George H. Wallen, Bureau of Reclamation)

Corps of Engineering Students at CSU

Marvin Martens)

Gary Rowe)

Robert McDonald) 4 Unofficial Participants

Glen Coombs)

Appendix 4

STRUCTURE OF THE TRAINING PROGRAM

Date		Session No.	Video Tape	Title	Instructor/ Leader
Aug.					
11	Afternoon			Check-In	Frye
	7:00-9:00 Evening			Orientation: Administration and Philosophy of the Training Program	Caulfield
12	8:30-10:00	1	X	Overview of Principles and Standards	Fairchild
	10:30-12:00	2	X	Planning Process and its Institutional Setting	Cobb
	1:30-3:00	3	X	National Economic Development (NED) Objective	Young
	3:30-5:00	4	X	Environmental Quality (EQ) Objective	Zube
	6:00-9:00			Dinner Speaker	Ford
13	8:30-10:00	5	X	Regional Development (RD) and Social Well Being (SWB) Effects	Gidez
	10:30-12:00	6	X	Economic Projections	DeGraff/ Green
	1:30-3:00	7	X	Environmental Projections and Carrying Capacity Models	Bishop
	3:30-5:00	8		Panel Discussion of the Use of Objectives and Projections in Multiobjective Planning	Steele
	7:00-9:00			Trainee Discussion Session	
14	8:30-10:00	9	X	Measurement of NED Effects	Young
	10:30-12:00	10	X	Measurement of EQ Effects	Hickman
	1:30-3:00	11	X	Measurement of RD Effects	Lijesen/ DeGraff
	3:30-5:00	12	X	Measurement of SWB Effects	Lijesen
15	8:30-10:00	13	X	Application of Systems Analysis to the Planning Process	Labadie
	10:30-12:00	14	X	Discussion of Measurements	Steele

Date		Session No.	Video Tape	Title	Instructor/ Leader
Aug.					
15	1:30-3:00	15	X	System of Accounts and Cost Allocation	Cobb
	3:30-5:00	16		Discussion of Accounts	Cobb
	7:00-9:00			Trainee Discussion Session	
16	8:30-10:00	17	X	River Basin Simulation for Planning	Hill
	10:30-12:00	18	X	Public Participation	Widditsch
	1:30-3:00	19	X	Analysis of Tradeoffs	Keith/ Mulder
	3:30-5:00	20	X	Public Decisionmaking Processes	Caulfield
17				Saturday	
18				Sunday	
19	8:30-10:00	21	X	Step 1-Specification of Components of NED and EQ Objectives	Crook/ Stauffer
	10:30-12:00	22		Each Team Apply Step 1 in Training Exercise	Team Chairmen
	1:30-3:00	23		Panel Discussion of Step 1	Crook
	3:30-5:00	24	X	Step 2-Evaluation of Resources-Determination of the "Without" Situation	Wallen/ Stauffer
20	8:30-10:00	25		Each Team Apply Step 2 in Training Exercise	Team Chairmen
	10:30-12:00	26		Step 2 (Continued)	Team Chairmen
	1:30-3:00	27		Panel Discussion of Step 2	Wallen
	3:30-5:00	28	X	Step 3-Develop Alternative Plans	Jones
21	8:30-10:00	29		Each Team Apply Step 3 in Training Exercise	Team Chairmen
	10:30-12:00	30		Panel Discussion of Step 3	Jones
	1:30-3:00	31	X	Steps 4 and 5-Comparison of Alternative Plans-Reconsideration	Jones
	3:30-5:00	32		Each Team Apply Steps 4 and 5 in Training Exercise	Team Chairmen

Date		Session No.	Video Tape	Title	Instructor/ Leader
Aug.					
22	8:30-10:00	33		Panel Discussion of Steps 4 and 5	Jones
	10:30-12:00	34	X	Step 6-Selection of a Recommended Plan	Adam
	1:30-3:00	35		Each Team Apply Step 6 in Training Exercise	Team Chairmen
	3:30-5:00	36		Panel Discussion of Step 6	Adam
	6:00-9:00			Dinner	
23	8:30-10:00	37		General Discussion and Review of Plan Formulation	Steele
	10:30-12:00	38		Evaluation of the Training Program	Sjogren
	1:30-3:00	39	X	Priorities, National Programming and Reimbursement Policy	Fairchild
	3:30-5:00	40		Closing Discussion	Caulfield